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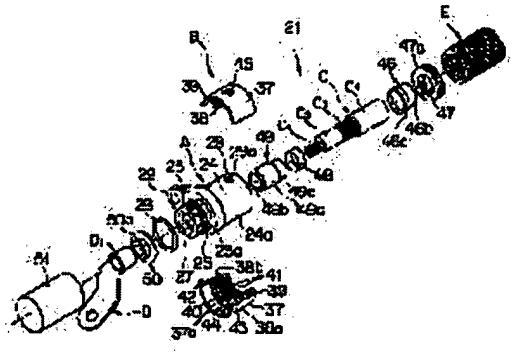
(54) SHIELDED CONNECTOR

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a shielded connector whose production cost is lowered and by which a sheath of a shielded elastic wire is prevented from shifting.

SOLUTION: A corrugated holder B, which is a constituent of this shielded connector 21 comprises a pair of opposed half covers, each of the half covers comprises an outer cover 37 and an inner cover 38, and a case insertion chamber 39 for an electric wire installation case A is formed between the outer cover 37 and the inner cover 38. Each inner cover 38 comprises an electric wire engaging part 40, corresponding to a shielded electric wire C in one end part of the inner circumferential face 38b and a plurality of tube-fitting grooves 41 for the corrugated tube E in the other end part. Each outer cover 37 comprises a cover fixation part 45, corresponding to the outer circumferential wall 24a of the electric wire installation case A. Moreover, a sheath-retaining ring 46 for compressing the sheath of the shielded electric wire C is fitted on the sheath.



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CLAIMS

[Claim(s)]
[Claim 1] The connector terminal connected to the terminal section of a shield electric wire The electric wire attachment case fixed to the attachment mouth which carried out protection hold of the terminal section of the aforementioned shield electric wire, and carried out opening to the case of an electrical machinery and apparatus The corrugated electrode holder with which a this electric wire attachment case electric wire insertion-side is equipped The corrugate tube for shield electric wire protection connected to an aforementioned electric wire attachment case electric wire insertion-side through this corrugated electrode holder While being the shield connector equipped with the above, and the aforementioned corrugated electrode holder's consisting of half covering of a couple which carries out phase opposite and equipping each of this half covering with outer covering and inner covering While the case plug room to an aforementioned electric wire attachment case electric wire insertion-side is formed between this outer covering and inner covering and the aforementioned inner covering equips the end section of inner skin with the electric wire stop section corresponding to the aforementioned shield electric wire The other end is equipped with the tube attachment slot of two or more articles which engages with the aforementioned corrugate tube, and the aforementioned outer covering is characterized by having a covering fixed part corresponding to the peripheral wall of the aforementioned electric wire attachment case.
[Claim 2] The shield connector according to claim 1 characterized by inserting the sheath retaining ring which compresses the direction of a path into the sheath of the aforementioned shield electric wire.
[Claim 3] It is the shield connector according to claim 2 which the aforementioned sheath retaining ring has a level difference, is formed from ****** of a minor diameter, and the stopper section of a major diameter, and is characterized by this stopper section having the path of the size which the edge which carries out opening can attach to the electric wire stop section of the aforementioned corrugated electrode holder.
[Claim 4] The claim 1 characterized by inserting the rubber stopper in which the aforementioned electric wire stop section and engagement are possible in the aforementioned shield electric wire, or a shield connector according to claim 3.
[Claim 5] The claim 1 characterized by engaging the aforementioned electric wire stop section between the aforementioned sheath retaining rings and rubber stoppers which were inserted in the aforementioned shield electric wire, or a shield connector according to claim 4.
[Claim 6] The aforementioned electric wire stop section is the claim 1 characterized by being the salient which project at equal intervals towards the shaft of the aforementioned corrugated electrode holder, or a shield connector according to claim 5.
[Claim 7] The aforementioned electric wire stop section is the claim 1 characterized by being a protruding line holding the aforementioned shield electric wire, or a shield connector according to claim 5.
[Claim 8] The claim 1 characterized by extending the inner bark of the aforementioned shield electric wire from opening by the side of the connector terminal strapping of the aforementioned electric wire

attachment case, and inserting the inner-bark retaining ring with a collar in which the aforementioned opening and attachment are possible in this inner bark, or a shield connector according to claim 7.
[Claim 9] the shell through which the aforementioned inner-bark retaining ring flows electrically in the braid of the aforementioned shield electric wire -- the shield connector according to claim 8 characterized by the stopper to movement and bird clapper by the side of the aforementioned connector terminal of a member
[Claim 10] The aforementioned inner-bark retaining ring is a shield connector according to claim 8 or 9 characterized by being formed by the insulator.
[Claim 11] The connector terminal connected to the terminal section of a shield electric wire The inner case which holds this connector terminal and carries out stop fixation The outer case which covers the aforementioned shield electric wire terminal section, and is connected to the connector of the other party while surrounding this inner case The corrugated electrode holder with which a this outer case electric wire insertion-side is equipped The corrugate tube for shield electric wire protection connected to an aforementioned outer case electric wire insertion-side through this corrugated electrode holder While being the shield connector equipped with the above, and the aforementioned corrugated electrode holder's consisting of half covering of a couple which carries out phase opposite and equipping each of this half covering with outer covering and inner covering While the case plug room to an aforementioned outer case electric wire insertion-side is formed between this outer covering and inner covering and the aforementioned inner covering equips the end section of inner skin with the electric wire stop section corresponding to the aforementioned shield electric wire The other end is equipped with the tube attachment slot of two or more articles which engages with the aforementioned corrugate tube, and the aforementioned outer covering is characterized by having a covering fixed part corresponding to the peripheral wall of the aforementioned outer case.
[Claim 12] The shield connector according to claim 11 characterized by inserting the sheath retaining ring which compresses the direction of a path into the sheath of the aforementioned shield electric wire.
[Claim 13] It is the shield connector according to claim 12 which the aforementioned sheath retaining ring has a level difference, is formed from ****** of a minor diameter, and the stopper section of a major diameter, and is characterized by this stopper section having the path of the size which the edge which carries out opening can attach to the electric wire stop section of the aforementioned corrugated electrode holder.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[The technical field to which invention belongs] this invention relates to the shield connector using the shield electric wire used for electric system wiring of an automobile etc.
[0002]
[Description of the Prior Art] Drawing 11 showed the shield connector 1 indicated by JP,1-112580,U, and this shield connector 1 is equipped with two or more connector terminals 3 connected to core-wire 2a of the shield electric wire 2, and the metal connector housing 4 which holds each of this connector terminal 3.
[0003] The connector housing 4 has terminal hold room 4a opened wide ahead, and is carrying out wearing hold of each aforementioned connector terminal 3. Behind terminal hold room 4a, fixed room 4b to the shield electric wire 2 is formed.
[0004] It scalps the terminal section, and near [the] the scalped part part, on sheath 2b, the tube 5 made from rubber or plastics was put, and, in the shield electric wire 2, the tube 5 has resulted to the outside of the connector housing 4. Thread-fastening fixation of the shield electric wire 2 is carried out by the upper shell clamp 6 of a tube 5 at fixed room 4b. In addition, 2in drawing c shows the shield layer (braid) which constitutes the shield electric wire 2.
[0005] If it was in the above-mentioned conventional technology, the bolting force of the clamp 6 to the shield electric wire 2 will be absorbed with a tube 5, and the shield electric wire 2 was not able to be called that to which sufficient fixation is carried out. That is, in case the shield connector 1 is sampled from the connector (not shown) of the other party, when the shield electric wire 2 is pulled without pressing down the connector housing 4 by hand, there is a trouble that gap will arise in sheath 2b, shield layer 2c, etc.
[0006] On the other hand, the connector in vehicles, such as a shield connector, needs to give waterproof construction according to the use gestalt. This is to flood the high-pressure wash water by car washing etc. in connector housing, and to prevent generating of the situation which is not desirable on electrical connection, and, generally the waterproof construction by which the connector as shown below was equipped with rear electrode-holder covering is known.
[0007] Drawing 12 shows the rear electrode-holder covering 11 indicated by JP,7-122330,A. The rear electrode holder 13 and the half coverings 14a and 14b of the tabular fitted in the connector housing 12 are formed in one through hinges 15 and 15, and the rear electrode-holder covering 11 changes.
[0008] The half coverings 14a and 14b are symmetrical configurations, half covering 14b is equipped with covering stop height 16a for stopping half covering 14a, and covering stop salient receiving part 16b, and half covering 14a is similarly equipped with covering stop height 16c for stopping half covering 14b, and 16d of covering stop salient receiving parts. Moreover, the fixed hole 17 corresponding to two or more fixed salient 12a prepared in the connector housing 12 is formed in the half coverings 14a and 14b, and the fixed slot 19 (drawing 13) which carries out attachment fixation of the corrugate tube 18 (drawing 13) further is formed.

[0009] The attachment sequence of the rear electrode-holder covering 11 attaches the rear electrode holder 13 in the connector housing 12 first, as shown in drawing 13 . Next, the half coverings 14a and 14b are rotated in the direction of ****** arrow P through a hinge 15, and attachment fixation of the corrugate tube 18 which contained the electric wire which does not illustrate the covering stop heights 16a and 16c and the covering stop salient receiving parts 16b and 16d into the fixed slot 19 while being engaged, respectively is carried out. Then, the fixed hole 17 is fitted into fixed salient 12a almost simultaneous. Thereby, an engagement stop is carried out and the rear electrode-holder covering 11 is united with the connector housing 12.
[0010] if it is in the above-mentioned conventional technology, since the rear electrode holder 13 and the half coverings 14a and 14b are fabricated by one through hinges 15 and 15 -- fabrication -- metal mold -- structure will become very complicated Moreover, if per metal mold of the rear electrode-holder covering 11 takes, a number decreases and the productivity is thought as important, since large-sized forming equipment will be used, there is a trouble that a manufacturing cost is applied.
[0011]
[Problem(s) to be Solved by the Invention] this invention makes it a technical problem to offer the shield connector which can aim at reduction of a manufacturing cost, and gap prevention of the sheath of a shield electric wire etc., respectively in order to solve the above-mentioned trouble.
[0012]
[Means for Solving the Problem] The shield connector accomplished by this invention in order to solve the above-mentioned technical problem The connector terminal connected to the terminal section of a shield electric wire as indicated by the claim 1, The electric wire attachment case fixed to the attachment mouth which carried out protection hold of the terminal section of the aforementioned shield electric wire, and carried out opening to the case of an electrical machinery and apparatus, It is a shield connector equipped with the corrugated electrode holder with which a this electric wire attachment case electric wire insertion-side is equipped, and the corrugate tube for shield electric wire protection connected to an aforementioned electric wire attachment case electric wire insertion-side through this corrugated electrode holder. While the aforementioned corrugated electrode holder consists of half covering of a couple which carries out phase opposite and each of this half covering is equipped with outer covering and inner covering While the case plug room to an aforementioned electric wire attachment case electric wire insertion-side is formed between this outer covering and inner covering and the aforementioned inner covering equips the end section of inner skin with the electric wire stop section corresponding to the aforementioned shield electric wire The other end is equipped with the tube attachment slot of two or more articles which engages with the aforementioned corrugate tube, and the aforementioned outer covering is characterized by having a covering fixed part corresponding to the peripheral wall of the aforementioned electric wire attachment case.
[0013] In the above-mentioned composition, a shield connector has the connector terminal connected to the terminal section of a shield electric wire, the electric wire attachment case which are fixed to the attachment mouth which carried out protection hold of the terminal section of a shield electric wire, and carried out opening to the case of an electrical machinery and apparatus, the corrugated electrode holder with which the electric wire insertion side of the electric wire attachment case is equipped, and the corrugate tube for shield electric wire protection which are connected to an electric wire attachment case electric wire insertion-side through a corrugated electrode holder. Moreover, a corrugated electrode holder consists of half covering of a couple which carries out phase opposite, and each half covering forms the case plug room to an electric wire attachment case electric wire insertion-side between outer covering and inner covering while being equipped with outer covering and inner covering. Inner covering equips the other end with the tube attachment slot of two or more articles which engages with a corrugate tube while equipping the end section of inner skin with the electric wire stop section corresponding to a shield electric wire. Moreover, outer covering has a covering fixed part corresponding to the peripheral wall of an electric wire attachment case. fabrication since it has in one the composition attached in an electric wire attachment case and is a symmetrical configuration, while each half covering carries out the engagement stop of a shield electric wire and the corrugate tube

according to this -- the die split structure of metal mold can be simplified, and since per metal mold can take even if it does not use still more large-sized forming equipment, and a number can also be increased, a manufacturing cost can be reduced

[0014] this invention of a claim 2 is characterized by inserting the sheath retaining ring which compresses the direction of a path into the sheath of the aforementioned shield electric wire.

[0015] By inserting the sheath retaining ring which compresses the direction of a path into the sheath of a shield electric wire, even if sudden external force joins a shield electric wire, gap of a sheath etc. can be prevented.

[0016] The aforementioned sheath retaining ring has a level difference from ****** of a minor diameter, and the stopper section of a major diameter, this invention of a claim 3 is formed, and it is characterized by this stopper section having the path of the size which the edge which carries out opening can attach to the electric wire stop section of the aforementioned corrugated electrode holder.

[0017] From ****** of a minor diameter, and the stopper section of a major diameter, a sheath retaining ring has a level difference and is formed. The stopper section has the path of the size which the edge which carries out opening can attach to the electric wire stop section of a corrugated electrode holder. Even if sudden external force joins a shield electric wire by this and a shield electric wire moves, the stopper section is stopped by the electric wire stop section, and can prevent gap of a sheath etc.

[0018] this invention of a claim 4 is characterized by inserting the rubber stopper in which the aforementioned electric wire stop section and engagement are possible in the aforementioned shield electric wire.

[0019] Since the electric wire stop section can hold down a rubber stopper and can insert it in an electric wire attachment case certainly in the assembly of a shield connector by inserting the rubber stopper in which the electric wire stop section and engagement are possible in a shield electric wire, there is no troublesomeness which puts in a rubber stopper by hand one by one, and workability can be improved.

[0020] this invention of a claim 5 is characterized by engaging the aforementioned electric wire stop section between the aforementioned sheath retaining rings and rubber stoppers which were inserted in the aforementioned shield electric wire.

[0021] The electric wire stop section is engaged between the sheath retaining rings and rubber stoppers which were inserted in the shield electric wire. Thereby, the electric wire stop section can accomplish easily gap prevention of a sheath etc. and the improvement of workability to a rubber stopper.

[0022] this invention of a claim 6 is characterized by the aforementioned electric wire stop section being a salient which project at equal intervals towards the shaft of the aforementioned corrugated electrode holder.

[0023] since the electric wire stop sections are two or more salients which project at equal intervals towards the shaft of a corrugated electrode holder -- fabrication -- the die split structure of metal mold can be simplified, and engagement of half covering, simultaneously the nose of cam of a salient can stop a shield electric wire

[0024] It is characterized by this invention of a claim 7 being a protruding line to which the aforementioned electric wire stop section holds the aforementioned shield electric wire.

[0025] since the electric wire stop section is a protruding line holding a shield electric wire -- fabrication -- the die split structure of metal mold can be simplified, and a shield electric wire can be stopped on the curved surface at engagement of half covering, simultaneously the nose of cam of a protruding line

[0026] this invention of a claim 8 extends the inner bark of the aforementioned shield electric wire from opening by the side of the connector terminal strapping of the aforementioned electric wire attachment case, and is characterized by inserting the inner-bark retaining ring with a collar in which the aforementioned opening and attachment are possible in this inner bark.

[0027] The inner bark of a shield electric wire is extended from opening by the side of the connector terminal strapping of an electric wire attachment case. The inner-bark retaining ring with a collar in which the aforementioned opening and attachment are possible is inserted in an inner bark. Even if sudden external force tends to join a shield electric wire by this and a shield electric wire tends to move, an engagement stop is carried out at an electric wire attachment case, and an inner-bark retaining ring

can prevent gap of a sheath etc.
[0028] the shell to which the aforementioned inner-bark retaining ring flows through this invention of a claim 9 electrically in the braid of the aforementioned shield electric wire -- it is characterized by the stopper and bird clapper to movement by the side of the aforementioned connector terminal of a member

[0029] the shell through which an inner-bark retaining ring flows electrically in the braid of a shield electric wire -- it becomes a stopper to movement by the side of the aforementioned connector terminal of a member thereby -- shell -- gap of a member can be prevented and generating of an electric poor contact can also be avoided Moreover, an inner-bark retaining ring becomes a stopper to movement by the side of the terminal of an electric wire attachment case similarly.
[0030] this invention of a claim 10 is characterized by fabricating the aforementioned inner-bark retaining ring by the insulator.
[0031] Since the inner-bark retaining ring is fabricated by the insulator, short-circuit with a connector terminal and the above-mentioned shell member can be prevented.
[0032] The connector terminal by which this invention of a claim 11 is connected to the terminal section of a shield electric wire, The inner case which holds this connector terminal and carries out stop fixation, and the outer case which covers the aforementioned shield electric wire terminal section, and is connected to the connector of the other party while surrounding this inner case, It is a shield connector equipped with the corrugated electrode holder with which a this outer case electric wire insertion-side is equipped, and the corrugate tube for shield electric wire protection connected to an aforementioned outer case electric wire insertion-side through this corrugated electrode holder. While the aforementioned corrugated electrode holder consists of half covering of a couple which carries out phase opposite and each of this half covering is equipped with outer covering and inner covering While the case plug room to an aforementioned outer case electric wire insertion-side is formed between this outer covering and inner covering and the aforementioned inner covering equips the end section of inner skin with the electric wire stop section corresponding to the aforementioned shield electric wire The other end is equipped with the tube attachment slot of two or more articles which engages with the aforementioned corrugate tube, and the aforementioned outer covering is characterized by having a covering fixed part corresponding to the peripheral wall of the aforementioned outer case.
[0033] A shield connector is equipped with the connector terminal connected to the terminal section of a shield electric wire, the inner case which holds a connector terminal and carries out stop fixation, the outer case which covers the terminal section of a shield electric wire and is connected to the connector of the other party while surrounding this inner case, the corrugated electrode holder with which an outer case electric wire insertion-side is equipped, and the corrugate tube for shield electric wire protection which are connected to an outer case electric wire insertion-side through this corrugated electrode holder. Moreover, a corrugated electrode holder consists of half covering of a couple which carries out phase opposite, and each half covering forms the case plug room to an aforementioned outer case electric wire insertion-side between outer covering and inner covering while being equipped with outer covering and inner covering. Inner covering equips the other end with the tube attachment slot of two or more articles which engages with a corrugate tube while equipping the end section of inner skin with the electric wire stop section corresponding to a shield electric wire. Moreover, outer covering has a covering fixed part corresponding to the peripheral wall of the aforementioned outer case. fabrication since it has in one the composition attached in an outer case and is a symmetrical configuration, while each half covering carries out the engagement stop of a shield electric wire and the corrugate tube according to this -- the die split structure of metal mold can be simplified, and since per metal mold can take even if it does not use still more large-sized forming equipment, and a number can also be increased, a manufacturing cost can be reduced
[0034] this invention of a claim 12 is characterized by inserting the sheath retaining ring which compresses the direction of a path into the sheath of the aforementioned shield electric wire.
[0035] By inserting the sheath retaining ring which compresses the direction of a path into the sheath of a shield electric wire, even if sudden external force joins a shield electric wire, gap of a sheath etc. can

be prevented.
[0036] The aforementioned sheath retaining ring has a level difference from ****** of a minor diameter, and the stopper section of a major diameter, this invention of a claim 13 is formed, and it is characterized by this stopper section having the path of the size which the edge which carries out opening can attach to the electric wire stop section of the aforementioned corrugated electrode holder.
[0037] From ****** of a minor diameter, and the stopper section of a major diameter, a sheath retaining ring has a level difference and is formed. The stopper section has the path of the size which the edge which carries out opening can attach to the electric wire stop section of a corrugated electrode holder. Even if sudden external force joins a shield electric wire by this and a shield electric wire moves, the stopper section is stopped by the electric wire stop section, and can prevent gap of a sheath etc.
[0038]
[Embodiments of the Invention] Hereafter, the gestalt of 1 operation of this invention is explained based on a drawing. Drawing 1 shows the decomposition perspective diagram of the shield connector of this invention, and the front view of the shield connector accomplished when drawing 2 assembled the composition member of drawing 1 , an a-a cross section [as opposed to drawing 2 in drawing 3], and drawing 4 show the expansion perspective diagram of the corrugated electrode holder shown in drawing 1 .
[0039] In drawing 1 or drawing 3 , 21 shows the shield connector used for electric system wiring of an electric vehicle, and this shield connector 21 consists of the electric wire attachment case A, the same corrugated electrode holders B made of synthetic resin, the shield electric wires C, the connector terminals D, corrugate tubes E, etc. made of synthetic resin.
[0040] The ends are the cylinder objects which carried out opening, the electric wire attachment case A has the attachment section 22 to the motor case which is not illustrated in the peripheral-wall middle, and the attachment cylinder part 23 of the minor diameter inserted in the attachment mouth which carried out opening of the front portion of the attachment section 22 to the motor case which does not carry out [aforementioned] illustration, and the back portion are formed as a case main part 24 of the major diameter to the aforementioned shield electric wire C.
[0041] A concave 25 (drawing 1 , three references) is attached in the middle of peripheral-wall 23a of the attachment cylinder part 23, and the seal ring 26 made of rubber is inserted in the concave 25. moreover -- the nose of cam 27 (drawing 1 , three references) of the attachment cylinder part 23, i.e., front end opening of the electric wire attachment case A, -- a conductive sheet metal -- a press and the 1st shell formed by carrying out folding -- it is equipped with the member 28 (drawing 2 , three references) In addition, the electric wire attachment case A carries out thread-fastening fixation of the attachment section 22, and the motor case which does not carry out [aforementioned] illustration is equipped with it.
[0042] The case main part 24 protrudes the fixed salients 29 and 29 of a couple which carry out phase opposite in the middle of the peripheral-wall 24a, and in order to make easy fitting of the aforementioned corrugated electrode holder B, taper side 29a gone down towards the edge 30 by the side of electric wire insertion of the case main part 24, i.e., back end opening of the electric wire attachment case A, is formed in each fixed salient 29.
[0043] On the other hand, sequentially from the back end opening 30, the electrode-holder engagement room 31 of a major diameter and the rubber stopper engagement room 32 of a minor diameter have a level difference 33, and are formed, internal 24b of the case main part 24 is further prolonged in the shaft of the electric wire attachment case A, and parallel ahead of the rubber stopper engagement room 32, as shown in drawing 3 , and the two or more articles protruding line 35 which has the level difference 34 as a stop step protrudes at equal intervals.
[0044] As the corrugated electrode holder B is shown in drawing 4 , it consists of the half coverings 36 and 36 of a couple which carry out phase opposite, and each half covering 36 is equipped with the outer covering 37 to peripheral-wall 24a of the aforementioned case main part 24, and the inner covering 38 held in the electrode-holder engagement room 31 of the case main part 24. The back end is connected and the outer covering 37 and the inner covering 38 are formed for the outer covering 37 in the gestalt of

this 1 operation suitably for a long time than the inner covering 38 with which it has the length corresponding to the depth of the electrode-holder engagement room 31. Moreover, the case plug room 39 to the back end opening 30 side of the aforementioned case main part 24 is formed between the outer covering 37 and the inner covering 38 (i.e., between inner skin 37a of the outer covering 37, and peripheral face 38a of the inner covering 38).

[0045] While forming two or more electric wire stop salients 40 as the electric wire stop section in a front portion at equal intervals at inner skin 38b of the inner covering 38, the tube attachment slot 41 is attached around a back portion two or more articles. In each electric wire stop salient 40, the pin-like salient 42 protrudes on one side, and salient **** 43 corresponding to the pin-like salient 42 is formed in another side at the electric wire stop salients 40a and 40b located in the ends of the inner covering 38.

[0046] On the other hand, in inner skin 37a, the outer covering 37 has the interior 44 of a taper-like proposal corresponding to the aforementioned fixed salient 29 for the point [a part of], and is drilling the fixed hole 45 of the rectangle as a covering fixed part in the middle.

[0047] The shield electric wire C is a core wire C1, an inner bark C2, a braid C3, and a sheath C4, as shown in drawing 1 . Shell composition is carried out, and it passes like the erector who mentions later, and is a core wire C1. The connector terminal D is connected (drawing 2 , three references), and it is a sheath C4. The corrugate tube E for shield electric wire protection is put on a side (refer to drawing 3). In addition, the shield electric wire C, the connector terminal D, and a corrugate tube E are the same as that of known composition, and omit the detailed explanation.

[0048] In drawing 1 and drawing 3 , 46 shows the sheath retaining ring extrapolated by the above-mentioned shield electric wire C, and is formed with the stage from stopper section 46a of a major diameter, and ******46b of a minor diameter. Stopper section 46a has the path of the size which the front end edge attaches to the medial surface of each electric wire stop salient 40 of the corrugated electrode holder B. Moreover, the ring-like rubber stopper with which 47 is extrapolated by the aforementioned shield electric wire C, and 48 are the same, and a braid retaining ring and 49 show the 2nd shell member formed from the conductive metallic pipe etc. the 2nd shell -- a member 49 has major-diameter section 49a in the center, and is formed with the stage where it order serves as narrow diameter portions 49b and 49c Furthermore, 50 is the inner bark C2 of the aforementioned shield electric wire C. It is the inner-bark retaining ring extrapolated, and flange 50a is formed in the back end. The inner-bark retaining ring 50 is an insulator, for example, is fabricated by Nylon 66 (tradename) which has the thermal resistance strengthened by the glass fiber. 51 is the sticking-by-pressure section D1 of the connector terminal D. The heat-shrinkable tubing (refer to drawing 1) to receive is shown.

[0049] The processing process over the shield electric wire C is explained concretely, referring to drawing 5 . First, the sheath retaining ring 46 is set to the terminal section of the shield electric wire C (drawing 5 (a)). Next, the sheath retaining ring 46 is inserted in the shield electric wire C from the ****** 46b side (drawing 5 (b)). The edge of the shield electric wire C is made to hold to attaching part 52a of **** equipment 52, and it is ******** (drawing 5 (c)) about ****** 46b by dice 52b. thereby -- sheath C4 Braid C3 etc. -- being stuck firmly (drawing 5 (d)) It scalps with the fixture which does not illustrate the terminal section of the shield electric wire C, and they are a braid C3, an inner bark C2, and a core wire C1. It is made to expose in order (drawing 5 (e)). ****** 46b -- caulking ********'s -- scalping -- setting -- sheath C4 etc. -- gap is not produced

[0050] Next, it explains concretely, referring to drawing 6 or drawing 9 about the erector of the shield connector 21 degree. As shown in drawing 6 , it is a sheath C4. A rubber stopper 47 is inserted. As for a rubber stopper 47, it is desirable in that case to prepare an interval with the sheath retaining ring 46 at least by the thickness of the electric wire stop salient 40 of each half covering 36. In addition, in the processing process over the above-mentioned shield electric wire C, you may extrapolate a rubber stopper 47 on the shield electric wire C with the sheath retaining ring 46. then, the braid retaining ring 48 -- braid C3 a periphery -- inserting -- the 2nd shell -- narrow diameter portion 49c behind a member 49 -- braid C3 Inner bark C2 It inserts in between. the 2nd shell -- narrow diameter portion 49b ahead of a member 49 -- inner bark C2 It is in contact with the inner bark C2 so that it may hold.

[0051] Then, further, a corrugate tube E is pulled and brought near so that the sheath retaining ring 46

may be covered (the inside of drawing, the direction of ****** Q), and the half coverings 36 and 36 are engaged from the both sides (the inside of drawing, the direction of ****** R) of a corrugate tube E. At this time, it is **** E1 of a corrugate tube E. While being attached in the tube attachment slot 41 of two or more articles of the inner covering 38, the engagement stop of the shield electric wire C is carried out at the nose of cam of the electric wire stop salient 40. Moreover, the pin-like salient 42 and salient **** 43 which were prepared in each inner covering 38 fit in, respectively, it unifies and each half covering 36 forms the corrugated electrode holder B (refer to drawing 7).

[0052] Next, as shown in drawing 7 , the corrugated electrode holder B which carried out the engagement stop of the shield electric wire C and corrugate tube E which passed through the above-mentioned process is set to the electric wire attachment case A, and these are attached (the inside of drawing, the direction of ****** S). While the case plug room 39 is put on the case main part 24, the inner covering 38 is held in the electrode-holder engagement room 31, and the fitting stop of the fixed hole 45 is carried out further at the fixed salient 29. As shown to drawing 8 by this, an engagement stop will be firmly carried out in the electric wire attachment case A by the corrugated electrode holder B.

[0053] Setting in this state, the shield electric wire C is the core wire C1. Inner bark C2 It is equipped so that it may jump out of the front end opening 27 of the electric wire attachment case A. Moreover, while the rubber stopper 47 inserted in the electric wire attachment case A together with the shield electric wire C is stopped by the level difference 34, peripheral face 47a of a rubber stopper 47 and the rubber stopper engagement room 32 are engaged watertight. on the other hand -- the 2nd shell -- the 1st shell with which major-diameter section 49a of a member 49 and the front end opening 27 were equipped -- a member 28 -- contacting -- braid C3 The exterior and an electric flow are attained.

[0054] it is shown in drawing 9 -- as -- inner bark C2 the inner-bark retaining ring 50 -- the 2nd shell from the flange 50a side -- it inserts until it contacts narrow diameter portion 49b of a member 49 The inner-bark retaining ring 50 is an inner bark C2 by known meanses, such as adhesives. It fixes. Next, core wire C1 The connector terminal D is stuck by pressure and it is this sticking-by-pressure section D1. Heat-shrinkable tubing 51 is put. It is heated, and contracts and heat-shrinkable tubing 51 is the sticking-by-pressure section D1. It protects.

[0055] since the shield electric wire C is equipped with the sheath retaining ring 46 in the state of caulking **** in the gestalt of 1 operation of this invention as explained above -- sheath C4 Braid C3 etc. -- firm -- sticking -- sheath C4 etc. -- gap is not produced moreover, even if force which draws out the connector terminal D from the electric wire attachment case A joins the shield electric wire C, stopper section 46a of the sheath retaining ring 46 is stopped by the electric wire stop salient 40, and the movement regulates the shield electric wire C -- having -- sheath C4 etc. -- gap is not produced furthermore, even if force which pushes the connector terminal D against the electric wire attachment case A joins the shield electric wire C, flange 50a of the inner-bark retaining ring 50 is stopped by the front end opening 27 of the electric wire attachment case A, and, as for the shield electric wire C, the movement is regulated like the above -- ******** -- sheath C4 etc. -- gap is not produced

[0056] In addition, while a rubber stopper 47 is pressed down, it will be certainly inserted in the rubber stopper engagement room 32 by the lateral surface of each electric wire stop salient 40, and the troublesomeness which pushes in a rubber stopper 47 by hand one by one is canceled, and it leads to improvement in workability by it. moreover, the inner-bark retaining ring 50 -- the 2nd shell -- while becoming a stopper for preventing movement to the front of a member 49 -- the connector terminal D -- the 1st or 2nd shell -- members 28 and 49 can be contacted and it can prevent short-circuiting Furthermore, the inner-bark retaining ring 50 also becomes a stopper for preventing that the electric wire attachment case A moves to the connector terminal D side again.

[0057] since the corrugated electrode holder B consists of the half coverings 36 and 36 of a couple which carry out phase opposite -- fabrication -- while being able to make into smallness the rate which occupies metal mold -- fabrication -- the die split structure of metal mold is simplified, and **** becomes possible even if [much] it does not use large-sized forming equipment Therefore, the effect that a manufacturing cost can be pressed down low is done so. Moreover, since it is easy work habits in which the electric wire attachment case A is made to attach the corrugated electrode holder B etc. after

being engaged so that each half covering 36 may be put from the both sides of a corrugate tube E, those who do work with a group for the first time can also attach the shield connector 21 easily.
[0058] Drawing 10 shows the gestalt of other operations of the shield connector of this invention. The shield connector 61 is composition which changes into the electric wire attachment case A of the above-mentioned shield connector 21, and applies the connector case F, since other composition is the same as that of the shield connector 21 almost, it omits detailed explanation, and it explains the connector case F below.
[0059] The connector case F consists of the outer case 62 made of synthetic resin, and the same inner case 63 made of synthetic resin, it is the cylinder object in which ends carried out opening, respectively, and, as for both the outer case 62 and the inner case 63, conductive metal plating is given.
[0060] Bulge formation of the hood 64 with which the outer case 62 accepts the connector (not shown) of the other party in a front portion is carried out. A hood 64 has the septum 65 of the shape of a cylinder over the case of the other party connector which does not carry out [aforementioned] illustration inside, and the hold room 66 is formed in the outside of a septum 65 with this septum 65 and the hood 64. The packing 67 made of silicone rubber is inserted in the hold room 66. Moreover, the stop salients 68 and 68 to the inner case 63 protrude on the nose-of-cam side at inner skin 65a of a septum 65. In addition, 69 shows the rocking arm to the other party connector which is not illustrated.
[0061] On the other hand, the fixed salients 70 and 70 to the fixed hole 45 of the corrugated electrode holder B mentioned above in peripheral-wall 62a carry out phase opposite, and the back portion of the outer case 62 protrudes.
[0062] The inner case 63 is formed with the stage from the terminal stop section 71 of a minor diameter, and the interior 72 of a proposal-ed of the major diameter to inner circle wall 62b of the outer case 62. A stopper 73 is formed at the nose of cam of the terminal stop section 71, and the terminal stop salient 74 is formed in the middle of wall 71a. The stop holes 75 and 75 corresponding to each stop salient 68 of the outer case 62 are formed in the front portion at outer wall 71b of the terminal stop section 71.
[0063] In the above-mentioned composition, from the back of the outer case 62, the connector case F inserts the inner case 63, and is formed. The stop hole 75 fits into the stop salient 68, and a part for the first portion of outer wall 71b of the terminal stop section 71 is held at a septum 65.
[0064] in addition, the shield electric wire C -- sheath C4 the above-mentioned sheath retaining ring 46 and rubber stopper 47' insert -- having -- core wire C1 **** -- known jack terminal D' is stuck by pressure Braid C3 The nose of cam is turned up outside and the part is fastened to the outer case 62 and rubber stopper 47' in the assembly of the shield connector 61.
[0065] When the corrugated electrode holder B which carried out the engagement stop of the above-mentioned shield electric wire C and the corrugate tube E is made to attach to the connector case F, connector terminal D' inserted from the back of the outer case 62 is firmly fixed by a stopper 73 and the terminal stop salient 74. The case plug room 39 of the corrugated electrode holder B covers the back end portion of the outer case 62, and the fixed salient 70 and the fixed hole 45 fit in.
[0066] Thus, not only the above-mentioned electric wire attachment case A but the connector case F is formed possible [attachment], and the corrugated electrode holder B has high versatility. Moreover, as mentioned by explanation of the shield connector 21, reduction of a manufacturing cost can be performed also in this form, and gap of a sheath etc. is not produced, either.
[0067] Although the above explained using the shield electric wire C, it is effective not only this but to use the sheath retaining ring 46 mentioned above, in order to make electric wires which converged, such as wire harness, apply and to prevent gap of each electric wire. Moreover, the electric wire stop salient 40 may be changed into the salient, and may be a protruding line, and it is desirable to form the curved surface corresponding to the circumference of the shield electric wire C at the nose of cam of a projection side of a protruding line. Furthermore, since the half covering 36 is constituted so that die split structure may become simple, even if it adopts the structure which connects each half coverings 36 and 36 with a hinge temporarily, it does not become complicated die split structure again.
[0068]
[Effect of the Invention] According to this invention indicated to have explained above by the claim 1, a

shield connector The connector terminal connected to the terminal section of a shield electric wire, and the electric wire attachment case fixed to the attachment mouth which carried out protection hold of the terminal section of a shield electric wire, and carried out opening to the case of an electrical machinery and apparatus, It has the corrugated electrode holder with which the electric wire attachment case electric wire insertion-side is equipped, and the corrugate tube for shield electric wire protection connected to an electric wire attachment case electric wire insertion-side through a corrugated electrode holder. Moreover, a corrugated electrode holder consists of half covering of a couple which carries out phase opposite, and each half covering forms the case plug room to an electric wire attachment case electric wire insertion-side between outer covering and inner covering while being equipped with outer covering and inner covering. Inner covering equips the other end with the tube attachment slot of two or more articles which engages with a corrugate tube while equipping the end section of inner skin with the electric wire stop section corresponding to a shield electric wire. Moreover, outer covering has a covering fixed part corresponding to the peripheral wall of an electric wire attachment case. fabrication since it has in one the composition attached in an electric wire attachment case and is a symmetrical configuration, while each half covering carries out the engagement stop of a shield electric wire and the corrugate tube according to this -- since the die split structure of metal mold can be simplified, per metal mold can take even if it does not use still more large-sized forming equipment, and a number can also be increased, it is the shield connector which can reduce a manufacturing cost

[0069] According to this invention of a claim 2, by inserting the sheath retaining ring which compresses the direction of a path into the sheath of a shield electric wire, even if sudden external force joins a shield electric wire, the effect that gap of a sheath etc. can be prevented is done so.

[0070] According to this invention of a claim 3, from ****** of a minor diameter, and the stopper section of a major diameter, a sheath retaining ring has a level difference and is formed. The stopper section has the path of the size which the edge which carries out opening can attach to the electric wire stop section of a corrugated electrode holder. Even if sudden external force joins a shield electric wire by this and a shield electric wire moves, the effect that the stopper section is stopped by the electric wire stop section, and can prevent gap of a sheath etc. is done so.

[0071] By inserting the rubber stopper in which the electric wire stop section and engagement are possible in a shield electric wire, in the assembly of a shield connector, the electric wire stop section can hold down a rubber stopper, it can insert in an electric wire attachment case certainly, there is no troublesomeness which puts in a rubber stopper by hand one by one, and, according to this invention of a claim 4, the effect of improving workability is done so.

[0072] According to this invention of a claim 5, the electric wire stop section is engaged between the sheath retaining rings and rubber stoppers which were inserted in the shield electric wire. Thereby, the electric wire stop section does so the effect that gap prevention of a sheath etc. and the improvement of workability to a rubber stopper can be accomplished easily.

[0073] since the electric wire stop sections are two or more salients which project at equal intervals towards the shaft of a corrugated electrode holder according to this invention of a claim 6 -- fabrication -- the die split structure of metal mold can be simplified, and the effect that engagement of half covering, simultaneously the nose of cam of a salient can stop a shield electric wire is done so

[0074] since the electric wire stop section is a protruding line holding a shield electric wire according to this invention of a claim 7 -- fabrication -- the die split structure of metal mold can be simplified, and the effect that a shield electric wire can be stopped on the curved surface at engagement of half covering, simultaneously the nose of cam of a protruding line is done so

[0075] According to this invention of a claim 8, the inner bark of a shield electric wire is extended from opening by the side of the connector terminal strapping of an electric wire attachment case. The inner-bark retaining ring with a collar in which the aforementioned opening and attachment are possible is inserted in an inner bark. Even if sudden external force tends to join a shield electric wire by this and a shield electric wire tends to move, the effect that an engagement stop is carried out at an electric wire attachment case, and an inner-bark retaining ring can prevent gap of a sheath etc. is done so.

[0076] the shell through which an inner-bark retaining ring flows electrically in the braid of a shield

electric wire according to this invention of a claim 9 -- it becomes a stopper to movement by the side of the aforementioned connector terminal of a member, and a stopper to movement by the side of the terminal of an electric wire attachment case thereby -- shell -- gap of a member can be prevented and the effect that generating of an electric poor contact is also avoidable is done so

[0077] According to this invention of a claim 10, since the inner-bark retaining ring is fabricated by the insulator, the effect that short-circuit with a connector terminal and the above-mentioned shell member can be prevented is done so.

[0078] According to this invention of a claim 11, a shield connector The connector terminal connected to the terminal section of a shield electric wire, and the inner case which holds a connector terminal and carries out stop fixation, The outer case which covers the terminal section of a shield electric wire and is connected to the connector of the other party while surrounding this inner case, It has the corrugated electrode holder with which an outer case electric wire insertion-side is equipped, and the corrugate tube for shield electric wire protection connected to an outer case electric wire insertion-side through this corrugated electrode holder. Moreover, a corrugated electrode holder consists of half covering of a couple which carries out phase opposite, and each half covering forms the case plug room to an aforementioned outer case electric wire insertion-side between outer covering and inner covering while being equipped with outer covering and inner covering. Inner covering equips the other end with the tube attachment slot of two or more articles which engages with a corrugate tube while equipping the end section of inner skin with the electric wire stop section corresponding to a shield electric wire. Moreover, outer covering has a covering fixed part corresponding to the peripheral wall of the aforementioned outer case. fabrication since it has in one the composition attached in an outer case and is a symmetrical configuration, while each half covering carries out the engagement stop of a shield electric wire and the corrugate tube according to this -- since the die split structure of metal mold can be simplified, per metal mold can take even if it does not use still more large-sized forming equipment, and a number can also be increased, it is the shield connector which can reduce a manufacturing cost

[0079] According to this invention of a claim 12, by inserting the sheath retaining ring which compresses the direction of a path into the sheath of a shield electric wire, even if sudden external force joins a shield electric wire, the effect that gap of a sheath etc. can be prevented is done so.

[0080] According to this invention of a claim 13, from ****** of a minor diameter, and the stopper section of a major diameter, a sheath retaining ring has a level difference and is formed. The stopper section has the path of the size which the edge which carries out opening can attach to the electric wire stop section of a corrugated electrode holder. Even if sudden external force joins a shield electric wire by this and a shield electric wire moves, the effect that the stopper section is stopped by the electric wire stop section, and can prevent gap of a sheath etc. is done so.

[Translation done.]